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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/607,082

06/25/2003

Jeremy R. Myles

5513P012

6537

45288 7590 06/26/2007  
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EXAMINER

KAO, CHIH CHENG G

ART UNIT

PAPER NUMBER

2882

MAIL DATE

DELIVERY MODE

06/26/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/607,082	Applicant(s) MYLES, JEREMY R.	
	Examiner Chih-Cheng Glen Kao	Art Unit 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 April 2007.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 6-9, 19, 21-27, 29, 32, 34-40, 42-46, 48-52 and 56-60 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19, 21-24, 32 and 34-37 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9, 25-27, 29, 38-40, 42-46, 48-52 and 56-60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Allowable Subject Matter*

1. The indicated allowability of claims 25-27, 29, 38-40, and 42 is withdrawn in view of the newly discovered reference(s) to at least Chou et al. (US 4995068). Rejections based on the newly cited reference(s) follow.

### *Claim Rejections - 35 USC § 101*

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 4 and 6-9 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims are directed toward a computer implemented system involving computational data. Although the system components and data are relative to physical properties, the data is none-the-less generated within a computer without a physical manifestation. Therefore, these claims do not produce a final result, which meet the standard of being concrete, tangible, and useful.

The claims must be for a practical application of the abstract idea, law of nature, or natural phenomenon. See *Diehr*, 450 U.S. at 187, 209 USPQ at 8 (“application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection”) and *Benson*, 409 U.S. at 71, 175 USPQ at 676 (rejecting formula claim because it “has no substantial practical application”).

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To satisfy section 101 requirements, the claim must be for a practical application of the 101 judicial exception, which can be identified in various ways:

1) The claimed invention “transforms” an article of physical object to a different state or thing.

2) The claimed invention otherwise produces a useful, concrete, and tangible result, based on the factors discussed in MPEP 2106. See also:

[http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101\\_20051026.pdf](http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf).

The manipulation of data to adjust a treatment plan is performed by the computer implementing programs and is therefore nonstatutory subject matter. Manipulation of data does not include a physical transformation outside of a computer or representation thereof. A system consisting solely of mathematical operations, i.e., converting one set of numbers into another set of numbers, does not manipulate appropriate subject matter, is not deemed to be concrete, tangible, and useful, and is therefore non-statutory.

An example which would make the instant claims statutory would be to include at least one of a component to save an adjustment to the treatment plan, and a component to execute the adjusted treatment plan. Hence, the final result would become concrete, tangible, and useful.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 4 and 46 are rejected under 35 U.S.C. 102(e) as being anticipated by Nafstadius (US 2004/0005027).

4. Regarding claims 4 and 46, Nafstadius discloses a system comprising a treatment planning component or means to generate a treatment plan (fig. 1, treatment planning), a simulation component or means to simulate an execution of the treatment plan on a patient (fig. 1, simulation), a third component or means to adjust the treatment plan based on the simulated execution of the treatment plan (paragraph 52), and at least one of component or means for saving an adjustment to the treatment plan, and a component or means for executing the adjusted treatment plan (paragraph 53).

5. Claims 56 and 60 are rejected under 35 U.S.C. 102(e) as being anticipated by Bailey et al. (US 2003/0048868).

6. Regarding claim 56, Bailey et al. discloses a system comprising a gantry (fig. 1, #18) having a radiation source (fig. 1, #22a), a patient support (fig. 1, #60), a radiation detector (fig. 1, #24), wherein said radiation source (fig. 1, #22a) is at a fixed position relative to the gantry (fig. 1, #18), and wherein said system comprises a simulation component (paragraph 37, lines 1-3).

Note that recitations (i.e., “that simulates a distance between a patient and a treatment source in a treatment machine”) with respect to the manner in which a claimed apparatus is

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intended to be employed does not differentiate the claimed apparatus from prior art if the prior art teaches all the structural limitations of the claim. See MPEP 2114.

7. Regarding claim 60, Bailey et al. discloses a system comprising a gantry (fig. 1, #18) having a radiation source (fig. 1, #22a), said gantry having an axis of rotation (fig. 1, #16), a patient support (fig. 1, #60), and a radiation detector (fig. 1, #24), wherein a distance from said radiation source (fig. 1, #22a) to said axis of rotation (fig. 1, #16) is a fixed distance.

Note that recitations (i.e., “a fixed distance that simulates a treatment source to treatment system axis of rotation of a linear accelerator treatment system”) with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from prior art if the prior art teaches all the structural limitations of the claim. See MPEP 2114.

8. Claim 57 is rejected under 35 U.S.C. 102(b) as being anticipated by Besson et al. (US 6301325).

Besson et al. discloses a system comprising a gantry (fig. 1, #20) having a radiation source (fig. 1, #10), a patient support (fig. 1, #46), a radiation detector (fig. 1, #44), and means to move the patient support (fig. 1, #58) closer to and/or further (fig. 1, along #48) from a gantry head (fig. 1, at #10) as the gantry rotates (fig. 1) to maintain a constant distance between the radiation source (fig. 1, #10) and a point (fig. 1, isocenter of gantry) defined in relation to the patient support (fig. 1, #46).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 2, 25, 29, 38, 40, and 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou et al. in view of Bailey et al.

10. Regarding claims 1 and 43, Chou et al. discloses a method comprising necessarily receiving a treatment plan of a target volume (col. 5, lines 34-36, in order to revise a treatment plan), receiving a digital fluoroscopic image of the target volume (fig. 1, via #24), necessarily adjusting the treatment plan based on movement (col. 5, lines 34-36) in a video display (fig. 1, #38) of the digital fluoroscopic image (col. 3, line 66), and at least one of necessarily saving an adjustment to the treatment plan, and executing the adjusted treatment plan (col. 5, lines 34-36, after making "revisions").

However, Chou et al. fails to disclose automation with a machine-readable medium.

Bailey et al. teaches automation necessarily with a machine-readable medium (paragraph 53).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the method of Chou et al. with the teachings of automation of Bailey et al., since providing an automatic means to replace manual activity which accomplishes

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the same result involves only routine skill in the art. One would have been motivated to make such a modification for speeding up the process.

11. Regarding claims 2 and 44, Chou et al. necessarily has adjusting treatment field information to allow for movement in a field (col. 5, lines 34-36). Bailey et al. also teaches adjusting treatment field information to allow for movement in a field (paragraph 41, lines 12-17, and paragraph 51).

12. Regarding claims 25 and 38, Chou et al. discloses a method comprising displaying a digital image of a patient based on a treatment plan, wherein the digital image is generated on a treatment simulator system (col. 5, lines 12-17), necessarily providing input associated with the digital image, adjusting the treatment plan or patient position based on the input associated with the digital image, and recalculating a treatment plan based on the input associated with the digital image (col. 5, lines 27-37).

However, Chou et al. fails to disclose automation with a machine-readable medium and saving a recalculated treatment plan.

Bailey et al. teaches automation with a machine-readable medium (paragraph 53) and necessarily saving a recalculated treatment plan (paragraphs 48 and 53, in the computer).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the method of Chou et al. with the teachings of automation and saving of Bailey et al., since one would have been motivated to make such a modification for speeding up the process.



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13. Regarding claim 40, Chou et al. necessarily displays fields of data based on the digital image (col. 5, lines 12-37).

14. Regarding claims 29 and 42, Chou et al. necessarily includes providing a radiation field input (col. 5, lines 12-37).

15. Claims 3 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou et al. and Bailey et al. as applied to claims 1 and 43 above, and further in view of Weinberger et al. (US 5764723).

Chou et al. as modified above suggests a method and medium as recited above.

However, Chou et al. fails to disclose adjusting gating information in a treatment plan.

Weinberger et al. teaches adjusting gating information (fig. 1, #7) in a treatment plan (title).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the method and medium of Chou et al. as modified above with the adjusting of Weinberger et al., since one would have been motivated to make such a modification for reducing normal tissue complications (col. 1, lines 63-65) as shown by Weinberger et al.

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16. Claims 6, 8, 48, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nafstadius as applied to claims 4 and 46 above, and further in view of Miller et al. (US 5117829).

Nafstadius discloses a system as recited above.

However Nafstadius fails to disclose wherein a treatment plan includes a digitally reconstructed radiograph image, wherein the digitally reconstructed radiograph image is imported into the system.

Miller et al. teaches wherein a treatment plan includes a digitally reconstructed radiograph image, wherein the digitally reconstructed radiograph image is necessarily imported into the system from the computed tomography scanner (col. 3, lines 57-66).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the system of Nafstadius with the image of Miller et al., since one would have been motivated to make such a modification for better aligning a patient (col. 2, lines 26-39) as implied from Miller et al.

17. Claims 7 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nafstadius and Miller et al. as applied to claims 6 and 48 above, and further in view of Murphy et al. (US 5901199) and Jaffray et al. (US 2003/0007601).

Nafstadius as modified above suggests a system as recited above.

However, Nafstadius fails to disclose generating digital fluoroscopy images of a target volume to confirm a digitally reconstructive radiography image.

Murphy et al. teaches generating fluoroscopy images of a target volume to confirm a digitally reconstructive radiography image (abstract, lines 8-18; and col. 5, lines 33-59). Jaffray et al. teaches digital images (abstract).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the system of Nafstadius with the confirming of Murphy et al., since one would have been motivated to make such a modification for higher accuracy and faster results (col. 2, lines 45-52) as implied from Murphy et al.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the system of Nafstadius as modified above with the digital images of Jaffray et al., since one would have been motivated to make such a modification for enhancing spatial resolution (paragraph 91) as shown by Jaffray et al.

18. Claims 9 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nafstadius and Miller et al. as applied to claims 6 and 48 above, and further in view of Frohlich et al. (US 6516046).

Nafstadius as modified above suggests a system as recited above.

However, Nafstadius fails to disclose a cone-beam scanner.

Frohlich et al. teaches a cone-beam scanner (fig. 2; and col. 5, lines 25-27 and 34-36).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the system of Nafstadius as modified above with the cone-beam scanner of Frohlich et al., since one would have been motivated to make such a modification for faster scanning compared to fan-beam scanning.

19. Claims 26, 27, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou et al. and Bailey et al. as applied to claims 25 and 38 above, and further in view of Frohlich et al.

20. Regarding claims 26 and 39, Chou et al. as modified above suggests a method and medium as recited above.

However, Chou et al. fails to disclose wherein displaying a digital image includes overlaying a simulator digital image and a digitally reconstructed radiograph image.

Frohlich et al. teaches wherein displaying a digital image includes overlaying a simulator digital image and a digitally reconstructed radiograph image (col. 3, lines 19-23).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the method and medium of Chou et al. as modified above with the displaying of Frohlich et al., since one would have been motivated to make such a modification for having precise repositioning in a short time (col. 2, lines 8-15) as shown by Frohlich et al.

21. Regarding claim 27, Chou et al. necessarily displays fields of data based on the digital image (col. 5, lines 12-37).

22. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton (US 2002/0193677) in view of Ivan et al. (US 6031888).

Thornton discloses a method comprising placing a patient necessarily on a patient support (figs. 2 and 2b), producing an image of the patient using an imager (fig. 2, #90) while on the patient support, producing a treatment plan for placement of a radiation source (fig. 2, #40) in the patient based at least in part on the image while the patient is on the patient support, and treating the patient according to the treatment plan on the patient support (paragraphs 18, 21, and 55-57).

However, Thornton fails to disclose a flat panel imager.

Ivan et al. teaches a flat panel imager (abstract).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the method of Thornton with the imager of Ivan et al., since one would have been motivated to make such a modification for reducing weight, reducing size, eliminating image distortions, or providing constant image quality (col. 7, lines 34-44) as shown by Ivan et al.

23. Claims 58 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collins et al. (US 6535574) in view of Toshiba ("Clinical Performance: Delivering upon the Promise of Multi-slice CT through Proven Performance").

Collins et al. discloses a system comprising a gantry (fig. 1, #210) having a radiation source (fig. 1, #215), a patient support (fig. 1, #230), and a radiation detector (fig. 1, #240), wherein the gantry comprises a single frame, wherein the frame comprises a first elongated portion and a second elongated portion disposed at an angle to one another (fig. 1, #210), and wherein the gantry, the patient support, and the radiation detector are electronically coupled (fig. 2).

However, Collins et al. fails to disclose aluminum casting.

Toshiba teaches aluminum casting (page 3, col. 1, lines 28-31).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the system of Collins et al. with the aluminum casting of Toshiba, since one would have been motivated to make such a modification for making a gantry more rigid, for increasing the lifetime of components, and/or for reducing vibrations (pg. 3, col. 1) as shown by Toshiba.

*Allowable Subject Matter*

24. Claims 19, 21-24, 32, and 34-37 are allowed. The following is a statement of reasons for the indication of allowable subject matter.

25. Regarding claim 19, the prior art fails to disclose or fairly suggest a method of adjusting a radiotherapy simulator system, including automatically adjusting one or more components of the radiotherapy simulator system based on an input associated with a digital image, in combination with all the limitations in the claim. Claims 21-24 are allowed by virtue of their dependency.

26. Regarding claim 32, the prior art fails to disclose or fairly suggest a machine-readable medium having instructions to cause a machine to perform a method of adjusting a radiotherapy simulator system, including automatically adjusting one or more components of the radiotherapy simulator system based on an input associated with a digital image, in combination with all the limitations in the claim. Claims 34-37 are allowed by virtue of their dependency.

*Response to Arguments*

27. Applicant's arguments with respect to claim 52 have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments filed April 2, 2007, have been fully considered but they are not persuasive.

28. Regarding claims 4 and 6-9, Applicant argues that since claims 1, 43, 46, and dependent claims thereof, as amended, are directed to statutory subject matter, the rejections of claim 1-4, 6-9, 43-46, and 48-51 under 35 U.S.C. 101 should be withdrawn. The examiner disagrees. Since no amendment was made to claims 4 and 6-9, those claims are still directed to non-statutory subject matter. Therefore, the rejections to claims 4 and 6-9 have been maintained.

29. Regarding claim 56, Applicant argues that Bailey et al. fails to disclose a structural limitation equal to a radiation source at a fixed position relative to a gantry that simulates a distance between a patient and a treatment source in a treatment machine, thus concluding that the reference fails to anticipate every limitation of the claim. The examiner disagrees. Bailey et al. does disclose a structural limitation equal to a radiation source (fig. 1, #22a) at a fixed position (paragraph 39, lines 2-4) relative to a gantry (fig. 1, #18). The other recitations (i.e., "that simulates a distance between a patient and a treatment source in a treatment machine") with respect to the manner in which the claimed apparatus is intended to be employed does not differentiate the claimed apparatus from prior art if the prior art teaches all the structural

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limitations of the claim. See MPEP 2114. Therefore, Bailey et al. does anticipate the claim, since the reference teaches all the structural limitations of the claim.

30. Regarding claim 60, Applicant argues that Bailey et al. fails to disclose a structural limitation equal to a distance from a radiation source to an axis of rotation as a fixed distance that simulates a treatment source to treatment system axis of rotation of a linear accelerator treatment system, thus concluding that the reference fails to anticipate every limitation of the claim. The examiner disagrees. Bailey et al. does disclose a structural limitation equal to a distance from a radiation source (fig. 1, #22a) to an axis of rotation (fig. 1, #16) as a fixed distance (paragraph 39, lines 2-4). In other words, the radiation source is always at a fixed distance (i.e., radius) from the axis of rotation, since it rotates around the axis of rotation along a circumference. The other recitations (i.e., “a fixed distance that simulates a treatment source to treatment system axis of rotation of a linear accelerator treatment system”) with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from prior art if the prior art teaches all the structural limitations of the claim. See MPEP 2114. Therefore, Bailey et al. does anticipate the claim, since the reference teaches all the structural limitations of the claim.

31. Regarding claim 57, Applicant argues that Besson et al. fails to disclose means to move the patient support closer to and /or further from the gantry head as the gantry rotates to maintain a constant distance between the radiation source and a point defined in relation to the patient support. The examiner disagrees. As the patient support (fig. 1, #46) of Besson et al. moves



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along the Z-axis, the support moves closer to and / or further from the gantry head while the gantry rotates (i.e., helical scanning). This movement of the patient support does maintain a constant distance between the radiation source (fig. 1, #10) and a point (i.e., isocenter of #20) defined in relation to the patient support (i.e., defined in that the isocenter is a point that the patient support traverses as helical scanning occurs). Therefore, Besson et al. does read on the claim as recited, and the claim remains rejected.

32. Regarding claims 58 and 59, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Collins et al. discloses a single frame gantry having two portions at an angle. Toshiba teaches a cast frame gantry. Therefore, the combination of references suggests a single cast (Toshiba) frame gantry having two portions at an angle (Collins et al.).

Applicant further argues that the motivation for combining the references is improper, since Toshiba teaches overcoming vibrations with supports. The examiner disagrees with this analysis. Toshiba teaches using "a rigid, aluminum die-cast gantry" for overcoming vibration issues to increase the lifetime of components (pg. 3, col. 1). This in itself implies multiple motivations for having cast gantries, such as making a gantry more rigid, increasing the lifetime of components, and/or reducing vibrations. Any of these reasons alone or in combination would be enough to provide motivation for one of ordinary skill in the art to incorporate the teachings of a cast gantry of Toshiba into the single frame gantry of Collins et al.

Applicant also argues that the motivation to combine Toshiba with Collins et al. is improper, since a practitioner in the art would not be motivated to use a cast gantry to reduce vibrations of Collins et al. because the gantry of Collins et al. does not experience the vibrations of concern in Toshiba. The examiner disagrees with this analysis. Even if the gantry of Collins et al. does not experience the same vibrations of concern in Toshiba, any vibrations are always a concern in mechanical systems, such as vibrations in rotating gantries. The reduction of vibrations reduces the amount of energy needed to actuate mechanical systems with moving parts in general, and more specifically increases the accuracy of positioning the radiation beam with gantries. Therefore, in the continual pursuit of reducing vibrations in mechanical systems, a practitioner in the art would be motivated to look at Toshiba in order to reduce any vibrations in the rotating gantry of Collins et al. for the purposes of reducing the amount of energy needed for rotating the gantry and for increasing the position accuracy of the radiation beam.

In conclusion, reducing vibrations is a proper motivation for incorporating the teaching of cast gantries of Toshiba with the single frame gantry of Collins et al. Furthermore, one would have been motivated to use cast gantries for making a gantry more rigid and/or for increasing the lifetime of components as clearly taught in Toshiba (pg. 3, col. 1). Therefore, these motivations, alone or in combination, would have been more than enough to lead one of ordinary skill in the art to incorporate the teachings of cast gantries of Toshiba with the single frame gantry of Collins et al.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Chih-Cheng Glen Kao  
Primary Examiner  
Art Unit 2882